



CALIFORNIA ISO

California Independent
System Operator

Status of the Path 15 Upgrade Project

Gary DeShazo

Grid Planning Department

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Project Need

- Promote economic efficiency and significant economic benefits to California ratepayers
- Simplifies system operation
- Is necessary and cost-effective addition to the ISO controlled Grid
- Not reliability and not needed to meet the ISO Grid Planning Standards, however, it will improve reliability and lower losses
- Increase capacity between southern and northern California by 1500 MW



Path 15 Upgrade Project Participants

Company		Type of Facility	Type of Facility Ownership	Transmission Entitlements
Trans-Elect		None	0%	72%
PG&E		Substations	100%	18%
WAPA		Land & Transmission Line	100%	10%
Total				100%



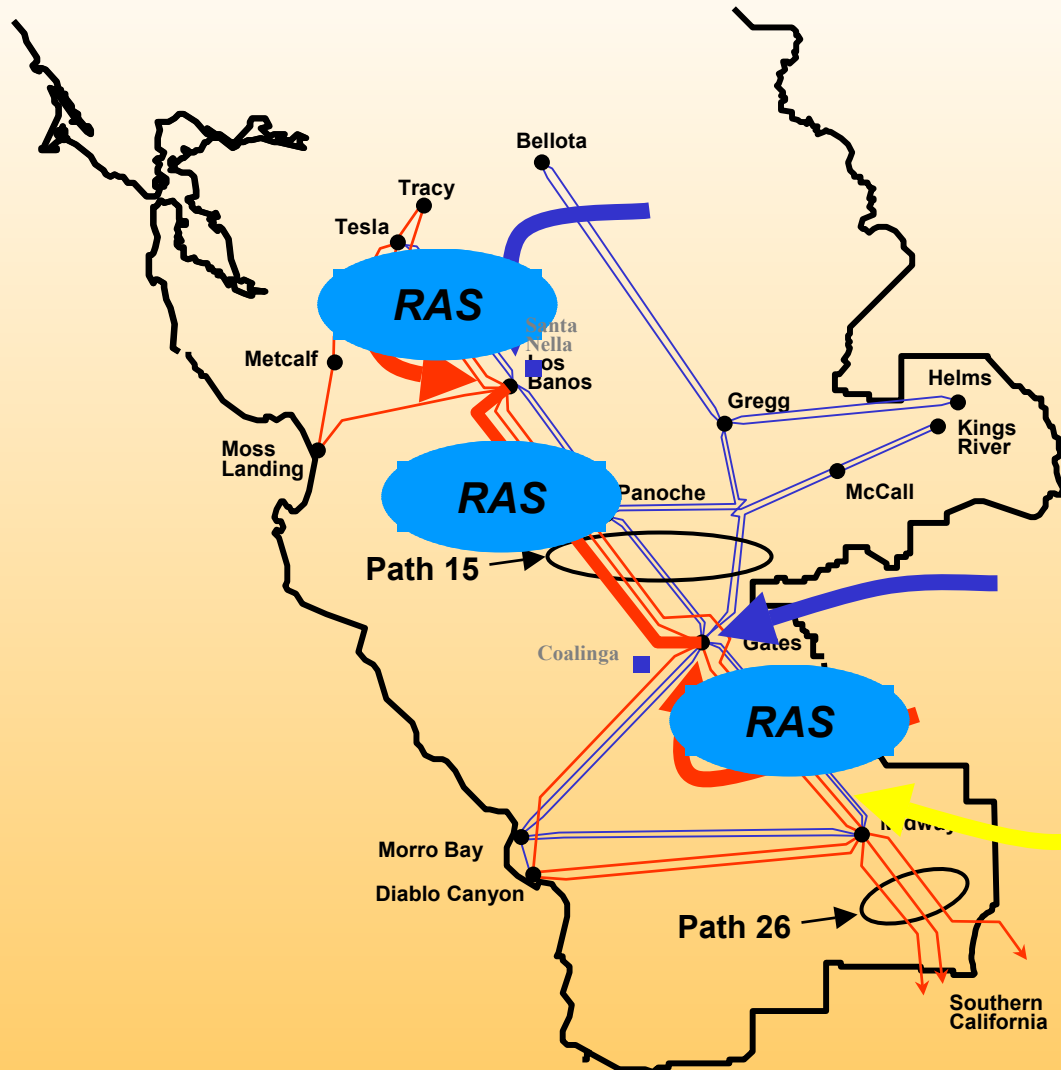
Path 15



- Los Banos-Gates 500 kV
 - Los Banos-Midway 500 kV
 - Gates-Panoche No. 1 230 kV
 - Gates-Panoche No. 2 230 kV
 - Gates-Gregg 230 kV
 - Gates-McCall 230 kV
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- Rating >> 3900 MW (s-n)
(Rating complies with WECC double line outage criterion for loss of the two 500 kV lines south of Los Banos)



Path 15 Upgrade Project



- Install an uncompensated, single circuit 500 kV transmission line between Los Banos and Gates Substations.
- Convert Gates 500kV ring bus to “breaker-and-a-half” arrangement
- Install 225 MVAR of 230 kV shunt capacitors at both the Gates and Los Banos Substations.
- Reinforce sections of the 230kV & 115kV lines north of Midway
- Modify the remedial actions in Path 15 and north and south of path 15.



Path 15 Current Ratings

- South to North rating: 3900 MW
 - Limited by the Los Banos south double line outage
- North to South rating: no established WECC rating
 - Operation rating: 1275 MW
 - Planning study rating: 2200 MW
 - Limited by the Los Banos south double line outage



Path 15 Post-Project Ratings

- South to North rating: 5400 MW
 - 1500 MW capacity increase
 - Limited by the Los Banos North double line outage
- North to South rating: 3300 MW
 - 1100 MW capacity increase
 - Limited by the Midway North double line outage



WECC Rating Study Status

South-to-North Direction

- Started Phase 1 WECC rating study in April, 2001.
- Regional Planning process completed in November 2001. (PG&E issued Phase 1 Comprehensive Progress Report on November 16, 2001).
- Started Phase 2 rating study on January 24, 2002.
- Project Review Group was formed and had meetings in January, June and November 2002.
- Draft Project Review Group report was issued on November 6, 2002.
- PG&E requested to enter Phase 3 project status in December, 2002.



Phase 1 Rating Study South-to-North

- Define preliminary Plan of Service for the Path 15 Upgrade Project.
- Proposed non-simultaneous south-to-north rating.
- Prepared Regional Planning Comprehensive Progress Report.
- WECC member provided comments for the report.
- PG&E to address comments as part of Phase 2.



Phase 2 Rating Study

South-to-North

- Confirmed and Refined the Plan of Service.
- Studied simultaneous interaction with other paths (e.g. COI, PDCI, west of Borah).
- Addressed sensitivity scenarios including one Diablo unit off, more Helm units pumping, new generation at north Path 15 (East Altamont) and reduced generation dispatch in the Midway area.
- Issued Draft Project Review Group report.
- The draft report requested to enter Phase 3 project status and grant the 5400 MW south-to-north rating as accepted rating.



WECC Rating Study Status North-to-South Direction

- PG&E issued Phase 1 Comprehensive Progress Report on August 12, 2002.
- Several entities provided comments for the Phase 1 Report, and expressed interest in forming a Project Review Group.
- WECC granted Phase 2 Study on November 5, 2002.



Path 15 Upgrade Project Status

- WAPA proposed to start the construction of the 500 kV line in January, 2003.
- Project estimated operation date: fall of 2004.